

WE CLAIM AS OUR INVENTION:

1. A magnetic resonance apparatus comprising:
a magnetic resonance scanner having a cavity therein adapted to receive a subject, said cavity having a boundary surface;
a gradient coil system disposed in said cavity, said gradient coil system having a middle region and edge regions respectively disposed on opposite sides of, and adjoining, said middle region, said middle region having a reduced mechanical stiffness compared to said edge regions;
and
a supporting arrangement to support said middle region against said boundary surface of said cavity.
2. A magnetic resonance apparatus as claimed in claim 1 wherein said gradient coil system comprises a carrier.
3. A magnetic resonance apparatus as claimed in claim 2 wherein said gradient coil system comprises a plurality of gradient coils, each composed of multiple sub-coils, and at least two units disposed on said carrier respectively comprising parts of said sub-coils.
4. A magnetic resonance apparatus as claimed in claim 3 wherein at least one of those units is a structurally independent unit.
5. A magnetic resonance apparatus as claimed in claim 3 wherein said two units, in said middle region, are attached to said carrier separated from each other.
6. A magnetic resonance apparatus as claimed in claim 2 wherein said carrier has a hollow cylindrical shape.

7. A magnetic resonance apparatus as claimed in claim 6 wherein said units each have a hollow cylindrical shape.

8. A magnetic resonance apparatus as claimed in claim 1 wherein said gradient coil system has a hollow-cylindrical shape.

9. A magnetic resonance apparatus as claimed in claim 1 wherein said cavity, in a region thereof corresponding to said middle region of said gradient coils system, has a barrel shape.

10. A magnetic resonance apparatus as claimed in claim 9 wherein said cavity has cylindrical regions respectively on opposite sides of, and adjoining, said region with said barrel shape.

11. A magnetic resonance apparatus as claimed in claim 1 wherein said scanner comprises a basic field magnet forming said cavity.

12. A magnetic resonance apparatus as claimed in claim 1 wherein said gradient coil system has a circumference, and wherein said support arrangement comprises at least three supporting element circumferentially distributed around said gradient coil system.

13. A magnetic resonance apparatus as claimed in claim 12 wherein at least one of said supporting elements comprises a threaded bolt with a pressure plate facing said boundary surface of said cavity.

14. A magnetic resonance apparatus as claimed in claim 13 wherein said gradient coil system comprises a carrier having a threaded bore therein in which said threaded bolt is received.

15. A magnetic resonance apparatus as claimed in claim 1 wherein said gradient coil system is attached to said boundary surface of said cavity by an adhesive.

16. A magnetic resonance apparatus as claimed in claim 1 wherein said gradient coil system is wedged in said cavity.